SO SHIPS CANNOT SINK.

This Man Shows How Ships Can Be Kept Afloat With Bags of Gas.

THERE is an instance on record of a ship going down in midocean before the eyes of her crew and those of a rescuing vessel, and yet of her having been towed into port a few weeks later. The reason for this was that the cargo of salt had melted out of her and she came to the surface by reason of her own buoyancy.

Now, however, comes along a man who claims that he can not only do this with an iron steamer, but that with the adoption of his patent, ships of all kinds will be rendered unsinkable. He does this by means of carbonic acid gas.

The inventor's name is M. L. Levassour, and he has a large working model in his office in London. This model is a hulk floating in a tank.

He fills the hulk with sand bags and bricks until her water line is submerged. Meanwhile there are two gaping holes in her sides, covered over with collision mats and supposed to have been knocked in her by another craft.

As soon as the mats are removed the vessel begins to sink. At this point in his demonstration the experimenter turns on a cock in his model, there is a hissing sound, and the gallant little ship floats proudly on the surface.

Allowed to sink to the bottom, she rises at once the moment these cocks are opened. The model is five feet in length.

The invention consists of a number of independent collapsible reservoirs, air tight and water proof, which, when not in use, hang under the deck of a ship, or, indeed, in any space not required for use, as the ceilings of cabins, engine rooms, etc. These bags fold up like concertinas, and, when not needed, lie quite flat against the ceilings and under the decks. It matters not where they are placed.

On deck, or wherever most convenient, are also placed a number of small cylinders filled with liquid carbonic acid. These, by means of pipes, are connected with the various balloons or air bags, each of which is independent, and in case of one being damaged the others are not injured.

As soon as a collision occurs, the mere pulling of a lever by the officer on the bridge causes the gas to rush into any of the air bags at will. The character of the air bags is such that by pressure of the gas they fit themselves automatically to the contour of the cargo or whatever place they may occupy.

The inventor claims that there is very rarely a collision which would necessitate the filling of all the bags on a ship fitted with his appliance. But he says no matter how serious may be the damage, even if the ship were cut into two parts, as has sometimes happened, either end of the vessel could be kept afloat by means of his bags of carbonic acid gas.

So long as the bags remained uninjured, the inventor claims that the ship could be kept afloat, as the gas would not escape. The deeper the bags are inserted in the hold, the greater would be the lifting effort they would exert on the ship.

This invention, says M. Levasseur, is based upon the well-known principle of the fish bladder. It was first devised by M. G. Dubois, an engineer of the Paris Ecole Central, and after eighteen months of experiment and study the scheme was finally perfected.

The metal cylinders are charged with liquid carbonic acid at the beginning of the voyage, and once placed in their position on the ship, they are to remain there. The bags, however, can be moved around at will to conform to the open spaces that are left when the cargo has been placed.

On passenger ships, where this invention would be especially valuable, its owners say that there would be plenty of room for the bags in spare staterooms. All of this adds, it is claimed, but little to the initial cost of a ship.

M. Levasseur claims that so large a ship as the Paris or Lucania could be fitted up with his appliance for about $5,000. Yachts and small boats could, he says, be easily fitted with the appliance at small cost.

SAW THE NORTH POLE.

Discoveries on Mars Indicate What Our Own Pole Looks Like.

ALTHOUGH no human being has ever laid eyes on the North Pole, and never may do so, in spite of the efforts being made to "discover" that point, we are now for the first time enabled to know with more or less positiveness exactly what the North Pole looks like. The planet Mars, which closely resembles the earth, not only in size and seasons, but in the high degree of civilization which its inhabitants are supposed to have reached, has a North Pole.

This north pole of Mars has now for the first time been seen and observed. It has been closely scrutinized in a powerful telescope by an astronomer who has given years to the observation of Mars and who waited anxiously until the planet, in the slow revolution of its changes, turned its north pole to the earth.

This observer was Professor Leo Brenner, who has published a technical description of his work in the last number of the Astronomischen Nachrichten. In this article he tells, in the queer language which astronomers use, how he watched the south polar cap of Mars, observing it grow toward the equator when Autumn set in upon that planet, then seeing it recede when Spring began on Mars and the snow melted, giving water to the numerous canals, along the sides of which vegetation (known by its bright green color) was seen to spring up.

During all this time Mars was slowly getting into a position which brought its north polar cap more and more into view. As this north polar cap, which had been turned away from the earth, came within the field of Professor Brenner's telescope, the south pole cap receded.

Finally the north pole itself rose above the horizon. Many people have an idea that there is a hole or a mountain or some other natural phenomenon at the north pole of the earth.

There was, however, no such peculiarity to be observed about the north pole of the planet Mars. The fact that it was the north pole was only to be determined by the exact science of the astronomer.

Professor Brenner knew precisely what spot in the great, white fields of snow and ice capping the planet was its north pole, and he marked it out with a pencil point upon the map beside him as he looked. A photograph taken of the north pole of Mars showed that it was precisely the same as the adjacent territory for thousands of miles, consisting of immense fields of hillocky ice.

There was no open polar sea such as many explorers have believed to exist about the north pole of this earth. Mars, in the years that have passed since the science of astronomy was begun, has frequently turned its north pole toward the earth. But because of the smallness and weakness of our telescopes, we have been unable hitherto to closely scrutinize that point.

During the past twenty-five years the great Lick telescope has been built, and large American-made telescopes have been set up in Europe. It was through one of these great magnifying instruments that Professor Brenner made his observations, which would not have been possible a quarter of a century ago.

He is the first man who has ever carefully observed the north pole of the planet Mars. These observations would not carry so much weight if they had been of Venus, Saturn or any other planet.

But Mars so closely resembles the earth that it is believed the conditions prevailing on the north pole of one prevail likewise on the north pole of the other. The seasons and the seas and continents of Mars resemble those of the earth.

Moreover, its inhabitants are believed to be far more advanced than ourselves, as is shown by their elaborate system of artificial canals, built on a gigantic scale, and first observed by the astronomer Schiaparelli. The flash lights they have been making are also believed to be attempts to signal to the people of the earth, but our poor achievements in science are so meagre that we are at the present time unable to flash a signal back, our most up-to-date system of illumination being altogether inadequate for the task.

NEW YORK'S QUEER CLUB OF FIRE FIENDS,

AND THE NEW FIRE-PROOF HELMET, MASK AND ELECTRIC LIGHT FOR OUR FIRE LADDIES.

YOU have heard of connoisseurs of pictures, of books, of music, of the drama, of wine, of cigars and so on; but did you ever hear of connoisseurs of fires?

If you have not, this will tell you about them. They are not fire "cranks," though they are members of an informal organization known to themselves and the fire laddies as the "Fire Fiends' Club." They are staid, respectable New Yorkers of means and leisure, who have found that neither pictures, books, music nor the drama furnishes such a satisfactory means of recreation and intellectual improvement as does a really superb conflagration.

These gentlemen met each other first and became acquainted at fires. They do not run after every fire that comes along, as the small boy does; they are connoisseurs, students. They not only know all about fires from the spectacular standpoint, but they understand fires theoretically, practically, philosophically and scientifically so well that they are held in honest esteem by the fire officers and laddies, with whom they are on a footing of comradeship, and are the proud possessors of fire badges, which enable them to roam at will inside the lines, and at times, when the force is shorthanded, taking a hand with the hose or carrying messages for the Chief himself. No one is better known than Simon Brentano. For twenty years Mr. Brentano has been studying fires here and abroad, having visited all the departments in the towns and cities of Europe west of Russia. He has the only fire library in this country, every book on the subject of conflagrations that has been printed these last twenty-five years, and many older, besides the complete records of the New York Fire Department.

Not a single fire of consequence has he missed for a quarter of a century, and he can tell of all these in detail. It is not the picturesque side of a fire that interests him, but the technical and scientific side, the handling of men and companies, the actual and comparative resistance of materials to flames, and the way by military manoeuvres a conflagration is held in check.

He often visits a building shortly after it has been partially burned, and, going over it from top to bottom, studies the progress that particular fire made, why it gained such headway on the men, and how, in a single moment, a strategic move gave the streams of water control.

In this way and by constant presence at every fire that is more than the slightest blaze he has piled up an enormous amount of fire knowledge. Chief Bonner says that Simon Brentano knows more about fire fighting than nine out of ten men actually in the service. Outside of practical knowledge, no man has such a grasp of the fire systems of the world. He can handle a hose, too, as well as any veteran.

His latest scheme is to establish a school or college where the science of fire fighting will be taught, and from which experts can be graduated to take positions in the departments of the cities of the country. Fireman generally say that a scheme like this would be of great value to the service.

Clad in rubber boots and macklntosh, if they happen to hear of a fire sufficiently near their homes to hastily grab these articles of apparel, if not with their clothing unprotected (and many an expensive coat and pair of trousers have been sacrificed to their hobby), these "fire cranks" are to be found everywhere. Next in importance to Mr. Brentano as a practical fireman of resource and knowledge is Major "Peggy" Thurston (Nathaniel B.), of the Twenty-second Regiment. It is said that if he had the chance Major Thurston could command a fire battalion as well as he does a military one, and his specialty is apparatus and equipments. He is proud of his fire knowledge because of the study he has put upon it and the esteem with which he is regarded by men high in the service. There is hardly a firehouse in town where he is not welcomed heartily.

All of the best known of the "fire enthusiasts" have their specialties. The man who only cares for the scenic display of a fire is, it is conceded, hardly worthy of being admitted in the guild. A man must have a distinct personality to be known as one of this peculiar little band of New Yorkers. Dr. Archer, of the Bellevue Hospital consulting staff, for example, who is seen eternally within the fire lines, is affectionately known as "physician in ordinary" to the firemen. Any man in the service can get treated free by the Doctor, no matter how much time the case may demand, and the little instrument and medicine case this M. D. hastily picks up when he hears an alarm has been frequently brought into use on the actual field of battle.

The firemen have likewise a member of the "cloth" upon their amateur staff. This is the Rev. James Le Baron Johnson, Dr. Huntington's assistant, and now stationed at Grace Chapel, on Fourteenth street, near First avenue. There is no other "fire enthusiast" who has so many personal friends among the rank and file in the engine houses. Only three men have ever been made honorary members of the Fireman's Mutual Benevolent Association, and he is one of them. This honor was also accorded to Father Van Rensselaer, who used to be the firemen's divine and was immensely popular with the men of the department.

It is the men themselves that interest him most. His great ambition is to bring the department and the prominent men of New York into closer touch. In accordance with this plan, he gave not long ago a dinner at the Reform Club, at which Chief Bonner was the principal guest, and the others distinguished men of various professions. Three or four nights of each week he invariably spends in going from one engine house to another.

Photography, art and literature have representatives among the "fire cranks," too. The finest collection of fire photographs in the world is that of "Al" Simpson (Alfred L.), who lives in apartments above the Union Dime Savings Bank, on Greeley square. His pictures show every phase of fire fighting, and so vivid and complete are they that this Winter they have been put on the stage, thrown on a screen in a dramatic series.

Besides these men the "fire fiends" contingent numbers Henry Wilkins, Frederick Tappan, Alexander Menkin, ex-President of the Excise Board; Captain Rhodes, of the Seventh Regiment; F. C. Moore, president of the Continental Insurance Company; ex-Alderman Charles Waite, Mills Miller, John Sullivan, Jr., Frank G. Faulkner, of Irving place; Howard Phelps, of No. 29 Broadway, Martin Lewis and Frederick Beach.

The "fire fiends" aforesaid, as well as the public, will be interested to know that the firemen of New York are testing new devices designed to aid them in fighting flames. One of the inventions—the aluminum hat—has already been adopted. This helmet is built on the lines of the regulation style of headdress worn by firemen throughout the country. The face mask to protect the wearer from smoke is a simple device. It consists of a leather covering, with a piece of thick glass. Below is a hole for air, into which fits a wet sponge to offset the smoke. The electric lantern, as its name signifies, is a lamp lighted by electricity furnished by a quartet of small storage batteries. All of these devices were used recently at a fire and gave excellent results.

How the Fireman Fights Fire with His New Helmet, Mask and Electric Lantern.

A HUMAN SHOOTING MATCH IN THE PHILIPPINES.

Patriots and Rebels Are Set Up Like Ninepins on a Wall and Shot Down with Rifles.

WHEREVER you find Spanish rule, there you find cruelty and barbarity. The Spaniards, in the almost hopeless campaign they are now conducting in the Philippine Islands, which, like Cuba, have rebelled after years of grinding oppression, pursue in the methods of their executions even more barbarous methods than they do in Cuba.

Prisoners of war they kill by wholesale, without even the semblance of a trial. The prisoners of war are condemned en masse, and then taken out to be shot.

For the purpose of shooting down these men by the wholesale the Spanish authorities in the Philippine Islands have built a low wall of stone, which only rises about a foot above the ground. Here the unhappy prisoners, their arms tied behind their backs and their faces set against the rising sun, are stood up in rows every morning. Each a short distance from the other. The priest is the only man allowed to converse with these prisoners from the time they are captured until they are executed. After the priest has administered the last rites of the Church to the unhappy prisoners, a file of soldiers standing a short distance back from the stone wall are ordered to take aim and fire.

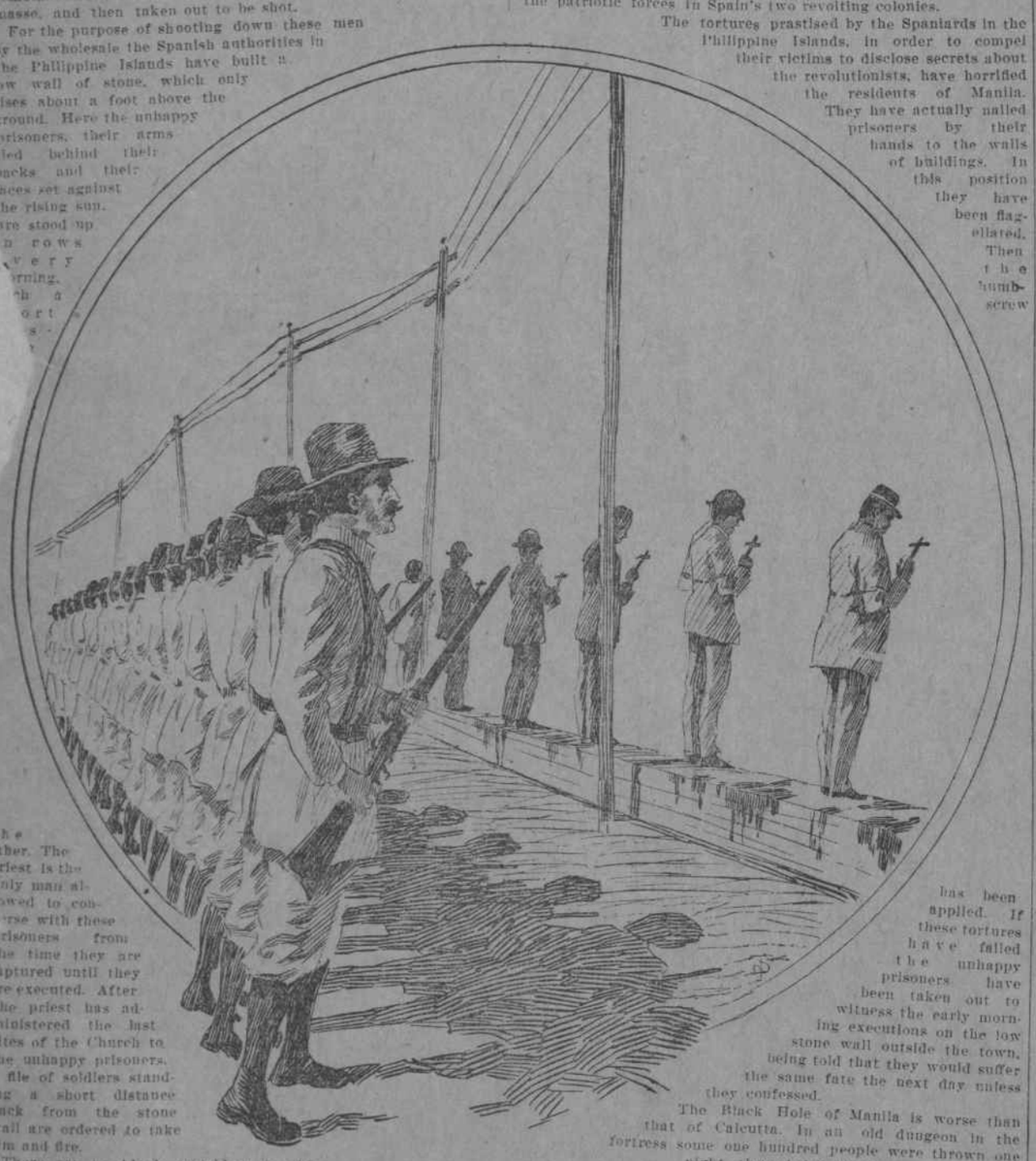
There are no blank cartridges in this volley. Every soldier aims his piece, and knows that it carries a death-dealing bullet.

There are several soldiers for every prisoner, so that death is sure to come when the command is given, and each prisoner is pierced by many bullets. The spectacle as described by an eyewitness is one which more resembles the barbarous cruelties of the Middle Ages than anything to be looked for in the nineteenth century.

The Spanish policy seems to be a wholesale extermination of the inhabitants of the Philippines, but the reports from the seat of war do not indicate that it will be any more successful than Spain's attempt to put down the rebellion of the Cuban patriots. The latter sympathize with their brethren in the Philippines, and many friendly messages have passed between the patriotic forces in Spain's two revolting colonies.

The tortures practised by the Spaniards in the Philippine Islands, in order to compel their victims to disclose secrets about the revolutionists, have horrified the residents of Manila. They have actually nailed prisoners by their hands to the walls of buildings. In this position they have been flagellated. Then the thumbscrew has been applied. If these tortures have failed the unhappy prisoners have been taken out to witness the early morning executions on the low stone wall outside the town, being told that they would suffer the same fate the next day unless they confessed.

The Black Hole of Manila is worse than that of Calcutta. In an old dungeon in the fortress some one hundred people were thrown one night, there being hardly room for thirty. The miserable wretches were up to their knees in mud. The next morning fifty-nine corpses were taken out. Entrance to this room was gained through a trap door in the roof, and the only ventilation was through a barred opening underneath the platform floor. It was found on examination of the bodies that the prisoners who had not been smothered were done to death by fellow sufferers.



Spanish Soldiers Killing Off Philippine Rebels.
(FROM A PHOTOGRAPH.)

A NATIVE ALEUTIAN HUT.

Curious Dwelling Brought Back to London by a Recent English Traveller.

Uncle Sam's Eskimo subjects are gentlemen of a picturesque turn of mind. The natives of Alaska, living under the Stars and Stripes, maintain, in close contact with American civilization, a rude and picturesque barbarity of life which one would expect to find only in Greenland.

No Alaskan is happy unless he lives in close proximity to a totem pole. A totem pole is a timber carved and painted in grotesque figures and generally stuck in the ground in front of an Alaskan residence, to whose inhabitants it is supposed to bring good luck and many children.

But among the Aleutian Islands, which belong to Alaska, the natives, it has now been found, have improved upon this decorative scheme. An enterprising English traveller named Dewindt, who attempted to cross from Alaska to Siberia over the Aleutian Islands, has taken photographs of some of the extraordinary dwellings of the natives and these he has presented to a public museum in London.

Not satisfied with this, Dewindt also took back to England an entire native habitation as he found it on one of the Aleutian Islands. This remarkable house had been ornamented by its owner with a picturesque collection of skulls and bones.

There were the skulls of seals, of walrus, of wolves, of foxes, of dogs and of other animals, all highly bleached and glistening in the sun. These had been stuck in the interstices of his timber dwelling by the Aleutian native, who much prided himself upon the effect and was only induced to part with his dwelling upon the payment of a substantial sum in rum, beads, tobacco, firearms and cloth.

The native expressed his astonishment at the desire of the Englishman to take back his dwelling to the white man's land, but said he supposed that the Englishman found it so superior to his own that he intended to live in it or to present it to his own chieftain as a souvenir of his voyage. After being photographed as it stood in the snow and ice, the dwelling of the Aleutian was taken to pieces and carefully packed. Now it has been put together and placed on exhibition in London as one of the primitive dwellings of present day savages.

How Snails Make Love, Told by a Scientist.

HOW snails see and the manner in which they make love to each other have now been described for the benefit of a waiting world by Dr. James Weir, Jr., of Owensboro, Ky. He has watched these curious little creatures crawling about the weeds in his back garden, and has discovered that they are extremely affectionate, and when in love can see each other a long way off by means of the curious eyes which project from their heads on the tips of long and delicate membranes.

"The snail," says this scientist, "carries its eyes in telescopic watchtowers. This animal is, for the most part, nocturnal in its habits, and, since prominent and commanding view points are assigned to its organs of vision, one would naturally expect to find a comparatively high degree of development in them; and this supposition is correct.

"The eyes of this creature are in the extreme tips of its 'horns' and consist of a cornea, a lens and a retina. Lubbock is rather disposed to decry the visual powers of the snail; my conclusions, drawn from personal observations, are, however, directly the opposite. The position of the eyes at the extreme tips of the 'feelers' naturally indicates they would have a very useful purpose; otherwise they would not have attained such prominence and such a high degree of development."

Actual experiment shows that the snail can see a moving white object such as a ball of cotton at a distance of two feet. Such a ball fastened to the end of a ten-foot pole was moved about in front of a snail to discover if it could see, and it was seen that the snail perceived it, pulling in its horns in terror and making off in a new direction.

"During the season of courtship," says this scientist, "snails easily perceive one another at the distance of eighteen or twenty inches. I have often watched them at such times, and have been highly entertained by their actions.

"The emotional natures of snails, as far as love and affection are concerned, seem to be highly developed, and they show plainly by their actions when courting the tenderness they feel for one another. This has been noticed by many observers of high authority, notably Darwin, Romanes and Wolff.

"As long as I live I shall never see anything equal to the loving tenderness of two snails, who, having in turn launched their little stone darts (as in prehistoric times), caress and embrace each other with a grace that might arouse the envy of the most refined epicurean. Two snails, one of them an invalid, the other in perfect health, lived in the garden of one of my friends.

"Becoming dissatisfied with their surroundings the healthy one went in search of another home. When it had found it, it returned and assisted its sick comrade to go thither, evincing toward it throughout the entire journey the utmost tenderness and solicitude. The healthy snail must have used its sight as well as its other senses to some purpose, for the sick snail rapidly regained its health amid its new surroundings."

A WHOPPER OF A WHEEL.

'Twould Take Seven Men Standing on One Another's Head to Reach Its Top.

The largest flywheel in this country used for mechanical purposes is forty feet in diameter and weighs 192,000 pounds. It would take seven men of average height standing on each other's heads to reach the top of the wheel. Four hundred horse-power is required to move this monster. When the full power is on, a point upon the circumference of the wheel travels at the rate of five and one-third miles every minute.

The wheel in question is a part of the enormous plant of the Ohio Steel Company, at Youngstown, in the Buckeye State, and was built by William Tod & Co., of the same place. It is of cast iron, the rim being three-inch thick plates bolted together. The engine driving this wheel has a cylinder measuring forty-six inches in diameter and sixty inches in length.

This engine is one of three used to generate the power required to mill the steel. The other two have fly wheels weighing only 144,000 pounds each. In addition there are a number of smaller engines, the total horse-power of which aggregates the respectable total of 3,200.

The Ohio Steel Company's works are considered the largest and most complete in this country, and cost $5,000,000 to construct. The money needed was furnished by the descendants of the late Governor Tod, of Ohio, and by other Ohioan capitalists, including Senator Mark Hanna.

The output of the plant is about 2,000 tons of steel rails and billets a day. It requires 200 tons of coke, 200 tons of coal, 50 tons of limestone and about 2,000 tons of pig iron every twenty-four hours.

Fifteen hundred men are employed there, the payroll being about $75,000 a month. Most of the men live in cottages near or on the work grounds.

One of the most interesting features is the automatic coal feeder. By means of this no stokers are needed, the coal being brought to the furnaces and fed regularly by machinery. In this way one man can attend to all the twenty boilers.